(dB/cm/MHz) is plotted for albumin microspheres (bubble concentration of 10^6 bubbles/ml), GOAM (bubble concentration of 10^6 bubbles/ml and Gd_2O_3 concentration of 0.02 mmol), and free Gd_2O_3 at concentrations of 200 mmol, 4 mmol and 2 mmol, respectively. This test demonstrates that GOAM has greater ultrasonic attenuation than the other contrast agents.

Example 10 – Integrated Ultrasonic Backscatter Coefficient

As shown in Figure 8, the ultrasonic backscatter coefficient of GOAM of the present invention, air-filled albumin microspheres, and free Gd_2O_3 at three separate concentrations is compared. The integrated ultrasonic backscatter coefficient (dB) is plotted for albumin microspheres (bubble concentration of 10^6 bubbles/ml), GOAM (bubble concentration of 10^6 bubbles/ml and Gd_2O_3 concentration of 0.02 mmol), and free Gd_2O_3 at concentrations of 200 mmol, 4 mmol and 2 mmol, respectively. This test demonstrates that GOAM has a greater integrated ultrasonic backscatter coefficient than the other media.

Example 11 – Second MR Characterization

Figure 9 illustrates magnetic resonance enhancement of various contrast agents. Vials containing the various contrast agents (or water) were inserted into a portion of beef. The contrast agents included, starting from the top row, from right to left, moving down:

First (top) row: Isovue® 300 (by Bracco Spa of Italy) (788 mmol), ProHance® (by Bracco Spa of Italy) (500 mmol);

Second row: Free Gd_2O_3 (20 mmol, 100 mmol and 200 mmol, respectively);

Third row: Free Gd_2O_3 (0.02 mmol, 0.4 mmol and 1.0 mmol, respectively); and

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Fourth (bottom) row: Water, Air-filled albumin microspheres and GOAM of the present invention (bubble concentration of 10^6 bubbles/ml and Gd_2O_3 concentration of 0.02 mmol).

This test demonstrates that GOAM provides enhanced MR imaging.

Example 12 – CT Characterization

Figure 10 illustrates CT attenuation comparing GOAM of the present invention, water, albumin microspheres, free Gd_2O_3 at various concentrations, and commercially available contrast agents. CT attenuation (Hounsfield units) is plotted for water, albumin microspheres (bubble concentration of 10^6 bubbles/ml), GOAM (bubble concentration of 10^6 bubbles/ml and Gd_2O_3 concentration of 0.02 mmol), free Gd_2O_3 at concentrations of 0.4 mmol, 1.0 mmol, 10 mmol, 20 mmol, and 100 mmol, respectively, Isovue® 300 (by Bracco Spa of Italy) (788 mmol) and ProHance® (by Bracco Spa of Italy) (500 mmol). This test demonstrates that GOAM has greater CT attenuation as compared to albumin microspheres. Additionally, this test suggests that attenuation will increase as greater concentrations of Gd_2O_3 are incorporated into the GOAM.

Many modifications and variations may be made in the techniques and compositions described and illustrated herein without departing from the spirit and scope of the present invention. Accordingly, the techniques and compositions described and illustrated herein should be understood to be illustrative only and not limiting upon the scope of the present invention.

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